

## **ABSTRACT OF THE DISCLOSURE**

A wide dynamic range transimpedance amplifier with a low cut off frequency at high optical power. An automatic transimpedance gain control and DC cancellation control feedback circuit includes variable impedance circuitry. An emitter terminal of a first pnp transistor is connected to the input of the transimpedance amplifier. The impedance seen at the emitter terminal changes according to the average value of the input current. Open loop gain of the feedback loop including the first pnp transistor is not dependent on the average input current as the input current increases. A base terminal of the first pnp transistor is connected to a base terminal of second pnp transistor. Emitter size of the second pnp transistor is some factor N smaller than emitter size of the first pnp transistor. N can be configured to adjust the gain control and low corner frequency variation with input power.

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